

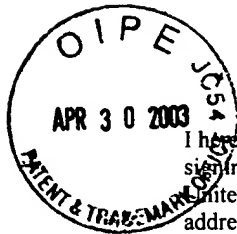
Serial No. 09/558,453

Docket No. 15939-18

25-02-03

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I hereby certify that on April 30, 2003, which is the date I am signing this certificate, I am depositing this correspondence the United States Postal Service, as first class mail, in an envelope addressed to the Assistant Commissioner of Patents, Washington, D.C. 20231

Charlotte A. Jensen
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PATENT

Applicant: Liu et al.
Serial No.: 09/558,453
Filed: April 25, 2000
Title: Spindle Motor With an Aerodynamic and Hydrodynamic Bearing Assembly
Examiner: T. Lam
Group Art Unit: 2834

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Assistant Commissioner for Patents
Washington, D.C. 20231

RESPONSE TO OFFICE ACTION OF 11-06-02

Sir:

It is noted that in the Office Action of November 6, 2002, a new ground of rejection has been entered, the Examiner relying upon the Dunfield, et al (5,850,318) Ref. for finding anticipation of Claims 2-7 under 35 USC § 102. It is respectfully submitted that as hereinafter discussed, the Dunfield reference is not anticipatory of the pending Claims 2-7.

Dunfield, et al relates to generally a "slotless" spindle motor for a disc drive. The majority of the specification discloses the "slotless" winding feature, shown in Figs. 3 – 8d, 14, 15, and 17 – 21 together with the corresponding texts.

However, Dunfield at all fails to disclose a spindle motor having an aerodynamic bearing. In the Office Action, the Examiner indicated that item 54 being "an aerodynamic bearing" (line 1 from bottom, page 2) and item 60 being a "hydrodynamic thrust bearing" (line 5, page 3). This is in error.

In Dunfield et al, under lines 58 – 61, column 4 in conjunction with Fig. 2, there is clearly indicated that item 54 is a "fluid port" "which supply hydrodynamic fluid 60 and assist in

circulating the fluid along the surfaces of the bearing”. It is unlikely that a “fluid port” for supplying a hydrodynamic fluid and assisting in fluid circulation would be understood to have anticipated an “aerodynamic bearing” as recited in claim 2 of the present application. A skilled person would also not regard the two features as obvious alternatives of each other.

Throughout the full disclosure of Dunfield et al, there is only one sentence which mentions the possibility of “either air or oil can be used for the bearing fluid” (lines 65 – 66, column 9). This disclosure clearly teaches that a spindle motor may have either one of the two types of bearings, but does not teach a spindle motor having both an aerodynamic bearing and a hydrodynamic bearing. The co-existence of the two types of bearings in a spindle motor is absent from Dunfield et al. In this regard, claim 2 of the present application is novel over Dunfield et al.

In addition, the applicants wish to point out that a mere statement of “either air or oil can be used for the bearing fluid” without further details on how this can be implemented, would not render a spindle motor having a hybrid aerodynamic bearing and a hydrodynamic bearing anticipated and obvious. According to Dunfield et al, under lines 60 – 62 column 9 for example, the hydrodynamic bearing comprises a “surface 324 of the over-molded stator winding”. A skilled person in the art would not consider this as a practically feasible solution for providing an “air-fluid” bearing to a spindle because the “over-molded stator winding” cannot provide the necessary dimensional and positional accuracy required for an air-fluid bearing, as the same would require bearing surfaces being precisely machined to a sub-micrometer accuracy level, which cannot be achieved by the “over-molding” process.

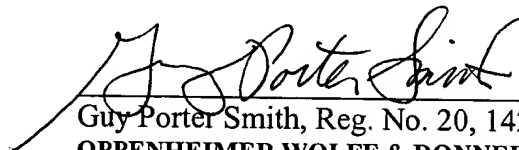
Furthermore, the spindle motors as disclosed in both Fig. 2 and Fig. 16 require an "O-ring" for sealing the fluid. This disclosure also teaches a spindle motor according to Dunfield at al will rather have a hydrodynamic bearing than an aerodynamic bearing.

In view of the foregoing, it is requested that reconsideration and allowance be given to claims 2 – 7 of the pending application. Please grant applicant a three-month extension of time to respond to the office action, continuing the response date from February 6, 2003, to May 6, 2003. Please charge the extension fee of three months for a large entity in the amount of \$920.00 to our Miscellaneous Fees Account No. 16-2230.

The Commissioner is hereby authorized to charge any additional fees under 37 CFR § 1.16 for application processing fees under 37 CFR §1.17, which may be required now or during the pendency of this application, or credit any over payment to Account No. 16-2230.

Respectfully submitted,

Dated: April 30, 2003



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